CLAIMS

WE CLAIM

1. A slider assembly comprising a plurality of sliders bonded by a solid debondable polymeric encapsulant, wherein

each slider has a surface that is free from the encapsulant,

the encapsulant-free surfaces are coplanar to each other, and

the encapsulant is comprised of a polymer prepared by polymerizing a mixture of first and second monomers in a nonstoichiometric ratio effective to render the encapsulant debondable.

2. The slider assembly of claim 1, having a contiguous planar surface comprised of at least one encapsulant region and containing the coplanar slider surfaces.

3. The slider assembly of claim 2, wherein the sliders are arranged in an array.

4. The slider assembly of claim 3, wherein the array is a rectilinear array.

5. The slider assembly of claim 4, wherein the sliders do not contact each other.

6. The slider assembly of claim 4, wherein the coplanar surfaces of the sliders are each an air-bearing surface.

7. The slider assembly of claim 6, further comprising a substrate in contact with the air-bearing surfaces.

8. The slider assembly of claim 7, wherein the substrate is comprised of a laminate of a flexible tape and an adhesive, wherein the adhesive is in contact with the air-bearing surfaces.

9. The slider assembly of claim 8, wherein the adhesive is a pressure sensitive adhesive.

10. The slider assembly of claim 8, wherein the adhesive preferentially adheres to the tape over the air-bearing surfaces.

11. The slider assembly of claim 1, wherein the encapsulant is mechanically stable for thermal cycling from about 20°C to about 100°C.

12. The slider assembly of claim 1, wherein the encapsulant is rigid.

13. The slider assembly of claim 1, wherein the encapsulant does not substantially outgas under vacuum.

14. The slider assembly of claim 4, further comprising a carrier attached to the encapsulant, at least one slider, or both, wherein the carrier does not cover any of the coplanar slider surfaces.

15. The slider assembly of claim 6, further comprising a resist layer on the air-bearing surfaces, wherein the encapsulant is mechanically stable upon exposure to the resist layer or any component thereof.

16. The slider assembly of claim 15, wherein the encapsulant is subject to solvation by a solvent not found in the resist layer.

17. The slider assembly of claim 1, wherein the polymer is prepared via *in situ* polymerization of the first and second monomers.

18. The slider assembly of claim 17, wherein the first monomer contains an amine and the second monomer contains an epoxide.

19. The slider assembly of claim 18, wherein the polymer is prepared from a stoichiometric excess of the first monomer to the second monomer.

20. The slider assembly of claim 18, wherein the polymer is prepared from a stoichiometric excess of the second monomer to the first monomer

21. The slider assembly of claim 1, wherein at least one of the monomers has a structure suitable for forming a linear polymer.

22. The slider assembly of claim 1, wherein at least one of the monomers has a structure suitable for forming a branched polymer.

23. The slider assembly of claim 1, wherein at least one of the monomers has a structure suitable for forming a polymeric network.

24. A method for forming a slider assembly, comprising:

(a) arranging a plurality of sliders each having a surface such that the surfaces are coplanar to each other;

(b) dispensing a fluid mixture of first and second monomers in a nonstochiometric ratio to bond the sliders without contacting the coplanar slider surfaces; and

(c) polymerizing the first and second monomers to form a polymeric debondable solid encapsulant.

25. The method of claim 24, wherein step (a) comprises placing the sliders on a laminate of a flexible tape and an adhesive such that slider surfaces contact the adhesive.

26. The method of claim 25, wherein the adhesive is resistant or impervious to solvation by the fluid mixture.

27. The method of claim 24, wherein the fluid mixture has an initial viscosity of no more than about 800 centistokes.

28. The method of claim 27, wherein the initial viscosity is no more than about 500 centistokes.

29. The method of claim 28, wherein the initial viscosity is about 10 to about 200 centistokes.

30. The method of claim 24, wherein step (c) is carried out at a higher temperature than step (b).

31. The method of claim 30, wherein step (c) is carried out at a temperature of at least about 50°C.

32. A method for forming a slider assembly, comprising:

(a) selecting first and second monomers such that polymerization thereof in a stoichiometric ratio forms a nondebondable solid encapsulant;

(b) producing a fluid mixture of the first and second monomers in a nonstoichiometric ratio;

(c) dispensing the mixture in a manner effective to bond a plurality of sliders; and

(d) polymerizing the first and second monomers to form a debondable solid encapsulant.

33. A method for patterning an air-bearing surface of a slider, comprising:

(a) applying a resist layer on an air-bearing surface of a slider, wherein at least a portion of the slider other than the air-bearing surface is encapsulated in a debondable solid encapsulant comprising a polymer prepared by polymerizing a mixture of first and second monomers in a nonstoichiometric ratio effective to render the encapsulant debondable;

(b) removing a portion of the resist layer to uncover a portion of the air-bearing surface in a patternwise manner; and

(c) adding material to and/or removing material from the uncovered portion of the air-bearing surface, thereby patterning the air-bearing surface of the slider,

wherein the encapsulant is mechanically stable upon exposure to any fluid employed in steps (a), (b), and/or (c).

34. The method of claim 33, further comprising, after step (a) and before step (b), exposing the resist layer to photons in the patternwise manner.